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Case No. 10125/4129

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Yeong Soo Nam et al.

Examiner: Andrew M. Schechter

Serial No: 10/748,699

Group Art Unit: 2871

Filed: December 29, 2003

Conf. No.: 2139

For: LIQUID CRYSTAL DISPLAY DEVICE
WITH NOTCHED GATE LINE AND
GATE ELECTRODE

AMENDMENT

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In reply to the Final Office Action dated April 3, 2008, Applicants have timely filed this Amendment by Certificate of Mailing. Applicants respectfully request the Examiner to withdraw the objections and rejections to this application and to grant allowance of this Application in view of the following remarks and amended claims.

Amendments to the Claims begin on Page 2 of this Paper.

Remarks begin on Page 6 of this Paper.

In the Claims:

Please amend the Claims as follows (the changes in these Claims are shown with ~~strikethrough~~ for deleted matter and underlines for added matter). A complete listing of the claims proper claim identifiers is set forth below.

1-10. (Canceled)

11. (Withdrawn) A method for manufacturing an LCD device comprising:

forming a gate line arranged in one direction on a substrate, the gate line having a predetermined portion bent angularly and inwardly;

forming a gate electrode projecting from the gate line;

sequentially depositing a gate insulating layer, a semiconductor layer and a conductive layer on the substrate including the gate line;

etching the conductive layer to form a data line overlapped with some of the bent portion of the gate line, thereby defining a pixel region, the data line perpendicular to the gate line;

forming a source electrode projecting from the data line;

forming a drain electrode at a fixed interval from the source electrode on the gate insulating layer;

forming an active layer by etching the semiconductor layer with the data line, the source electrode and the drain electrode as a mask; and

forming a pixel electrode in the pixel region.

12. (Withdrawn) The method of claim 11, wherein a predetermined portion of the gate electrode is bent angularly and inwardly.

13. (Withdrawn) The method of claim 11, wherein the drain electrode is overlapped with some of the bent portion of the gate electrode.

14. (Withdrawn) The method of claim 11, wherein at least a section of the bent portion of the gate line is curved.

15. (Withdrawn) The method of claim 12, wherein at least a section of the bent portion of the gate electrode is curved.

16. (Withdrawn) The method of claim 12, wherein the drain electrode is overlapped with some of the bent portion of the gate electrode.

17. (Currently Amended) An LCD device comprising:
a substrate;
a gate line arranged in one direction on the substrate;
a gate electrode projecting from a first side of the gate line;
a gate insulating layer disposed on the substrate;
a data line perpendicular to the gate line, thereby defining a pixel region,
wherein the data line is adjacent to the gate electrode;
a source electrode projecting from the data line;
a drain electrode on the gate insulating layer at a fixed interval from the source electrode;
an active layer below the data line, the source electrode and the drain electrode; and
a pixel electrode in the pixel region,
wherein a notch is formed in a second side of the gate line opposing the first side, and disposed between an edge of the gate electrode and an edge of the data line, such that a boundary of the gate line having the notch that overlaps the data line is greater than a width of the data line, and
wherein a boundary of the gate electrode that overlaps the drain electrode is greater than a width of the drain electrode.

18-19. (Cancelled)

20. (Previously presented) The LCD device of claim 17, wherein at least a section of the notch is disposed directly opposite to the gate electrode.

21. (Previously presented) The LCD device of claim 17, wherein an edge of the notch is aligned with an edge of the gate electrode.

22. (Original) The LCD device of claim 21, wherein the edge of the notch and the edge of the gate electrode are non-parallel with an edge of a portion of the gate line in which the notch is not formed.

23. (Original) The LCD device of claim 22, wherein the edge of the notch and the edge of the gate electrode are parallel with an edge of the data line.

24. (Previously presented) The LCD device of claim 17, wherein a width of the notch is less than a width of the gate electrode.

25. (Previously presented) The LCD device of 17, wherein a length of the notch is less than a length of the gate electrode.

26. (Previously presented) The LCD device of 17, wherein an edge of the notch and an edge of the gate electrode are non-parallel with an edge of a portion of the gate line in which the notch is not formed.

27. (Previously presented) An LCD device comprising:
a substrate;
a gate line arranged in one direction on the substrate;
a gate electrode projecting from one side of the gate line;
a gate insulating layer disposed on the substrate;
a data line perpendicular to the gate line, thereby defining a pixel region;
a source electrode projecting from the data line;
a drain electrode on the gate insulating layer at a fixed interval from the source electrode;
an active layer below the data line, the source electrode and the drain electrode; and
a pixel electrode in the pixel region,

wherein changes in a capacitance formed by a total overlap between the gate line and the data line and one of between the gate electrode and the data line and between the gate electrode and the source electrode are substantially compensated for with movement of the gate line in a direction of a width of the data line and a boundary of the gate electrode that overlaps the drain electrode is greater than a width of the drain electrode.

28. (Cancelled)

29. (Previously presented) The LCD device of claim 27, wherein a notch formed in the gate line decreases the capacitance between the gate line and the data line and substantially compensates for the capacitance between one of between the gate electrode and the data line and between the gate electrode and the source electrode.

30. (Original) The LCD device of claim 29, wherein at least a section of the notch is disposed directly opposite to the gate electrode.

31. (Original) The LCD device of claim 29, wherein an edge of the notch is aligned with an edge of the gate electrode.

32. (Original) The LCD device of claim 31, wherein the edge of the notch and the edge of the gate electrode are non-parallel with an edge of a portion of the gate line in which the notch is not formed.

33. (Original) The LCD device of claim 32, wherein the edge of the notch and the edge of the gate electrode are parallel with an edge of the data line.

34. (Original) The LCD device of claim 29, wherein a width of the notch is less than a width of the gate electrode.

35. (Original) The LCD device of claim 29, wherein a length of the notch is less than a length of the gate electrode.

36. (Original) The LCD device of claim 29, wherein an edge of the notch and an edge of the gate electrode are non-parallel with an edge of a portion of the gate line in which the notch is not formed.

REMARKS

Summary

Claims 11-18, 20-27 and 29-36 were pending. The Applicants have amended claim 17 to incorporate the subject matter of claim 18, and canceled claims 18. No new matter has been added. The Applicants respectfully request reconsideration of the rejections.

Claim Rejections

In the Office Action, claims 17 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (Korean Patent No. P1999-00745559) in view of Dohjo et al. (USP. 6,078,366). The Examiner indicated that claim 18 would be allowable if rewritten in independent form including all of the limitations of the base claim.

By this Amendment, claim 17 is amended to incorporate the subject matter of claim 18.

Therefore, claims 17 and 24-26 are allowable over the cited references including Kim (Korean Patent No. P1999-00745559) and Dohjo et al. (USP. 6,078,366).

Respectfully submitted,

Dated: July 2, 2008

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